

REMARKS

In the Official action mailed August 23, 2004, the examiner has re-opened prosecution following submission of applicant's Appeal Brief filed June 9, 2004. Responsive to the re-opening of prosecution, applicant hereby submits the foregoing reply under 37 C.F.R. 1.111.

Before proceeding to address the rejection, applicant will briefly summarize his invention to assist the examiner in better appreciating the differences between applicant's invention and the art of record. As recited in previously presented claim 1, applicant provides a method for performing semi-automatic tracking of colored objects within a video image. The method commences by separating image within the initial frame based on color. A user provides an input selecting an object of interest by identifying a centroid of that object. The selected object is tracked through successive frames using a Kalman predictive algorithm applied to the centroid.

35 U.S.C. 102(e) Rejection of Claims 1-8

Claims 1-8 stand rejected under 35 U.S.C. 102(e) as anticipated by U.S. Patent 6,404,900, issued June 11, 2002, from an application filed January 14, 1999, in the name of Richard J. Qian et al. Applicant respectfully traverses the rejection based on the following remarks.

The Qian et al. patent concerns a method for tracking human faces. To accomplish such tracking, Quian et al. first acquire a frame from a color video sequence containing one or more faces of interest. The selected frame undergoes filtering, followed by estimation of the locations of faces in the filtered frame. Face motion is estimated and the location of the size of the tracked face is output to a display.

In rejecting applicant's claims, the examiner contends that the Quian et al. Patent teaches all of the features applicant's claimed method. Among the features recited in applicant's claim 1 is the step of

receiving a user-provided input that selects an object of interest from the separated objects by a user identifying a centroid of the object of interest

With regard to this feature, the examiner contends that disclosure at Col. 5, lines 23-47 and Col. 7, lines 54-57 teach this feature of applicant's invention.

Notwithstanding the examiner's contentions to the contrary, a careful review of the disclosure relied upon to support the examiner's rejection reveals that the Quian et al. does not

teach applicant's step of receiving a user input in which a **user identifies a centroid of the object of interest**. The disclosure at Col. 5, lines 23-47 of Quian et al. provides:

In the related application, identified herein above, the center position and size of a tracked face is estimated based on the means and standard deviations of these histograms. The distribution of skin colors of people are clustered in chromatic color space. Although skin color of different people appears to vary over a wide range, the actual differences are in intensity rather than in true color. The skin color of different people are actually quite similar, it is the intensity that we perceive as different colors. Filtration step 16 is provided to (1) facilitate a distinction between skin tones and other objects in a frame, and (2) detect skin tones regardless of the perceived color of a person's skin, which skin tone varies from person-to-person and also varies for the same person under different lighting conditions. A suitable filter facilitates the ability of the system to track the face(s) in an image regardless of lighting conditions and regardless of skin tone as perceived by the human visual system.

However, the face center position and size estimated from sample means and standard deviations may be biased in the case where more than one face or other skin-color-like objects occur in the scene. It is therefore a purpose of this invention to provide a method to address this problem. This invention describes robust routines to achieve robust measurements or face center position and size, wherein an image contains multiple faces.

Nothing in this cited portion of the Quian et al. patent cited by the examiner describes or suggests receiving any type of user input by which a **user designates the centroid of the object of interest**. Rather, this cited portion of the Quian et al. patent clearly indicates that the center position of the object of interest is estimated from histograms obtained from a binary image derived by processing a file containing facial images. *The user has no input concerning selection of the centroid of the object of interest.*

The disclosure at Col. 7, lines 54-57 of Quian et al. provides the following:

The method of the invention enables a user to eliminate or substitute background in the input video sequences. Therefore the system may allocate the entire communication bandwidth to faces.

At best, this cited portion of Quian et al. describes the ability of a user to change backgrounds. Changing the background constitutes an entirely different concept than *selecting the centroid of an object of interest*.

Based on the foregoing, the examiner has failed to establish a *prima facie* case of anticipation of claim 1 because the examiner has failed to show that the Quian et al. patent discloses each and every feature recited in the claim. In particular, the examiner has failed to show that the Quian et al. patent teaches applicant's step of receiving a user-provided input that selects an object of interest from the separated objects by a user identifying a centroid of

the object of interest. Therefore claim 1 patentably distinguishes over the art of record. Applicant respectfully requests withdrawal of the 35 U.S.C. 102(e) rejection of claim 1, as well as claims 2-3 that depend therefrom.

Applicant's claim 4 recites a method for tracking a colored object. Among the features recited in claim 4 is the step of:

selecting a separated object by a user identifying a reference point within a boundary of the separated object.

This feature is not taught or suggested in the Quian et al. patent. As discussed above with respect to the 35 U.S.C. 102(e) rejection of Claim 1, the Quian et al. patent provides no teaching whatsoever regarding the desirability of having a user select a reference point, such as a centroid, within an object of interest. At best, Quian et al. suggest the desirability of enabling the user to change backgrounds, something entirely different than selecting a point of interest in the object itself. For this reason, the Quian et al. patent does not anticipate claim 4, or claims 5-8 which depend therefrom. Accordingly, applicant requests withdrawal of the 35 U.S.C. 102(e) of claim 4, and claims 5-8 that depend therefrom.

Objection to Claims 9-10

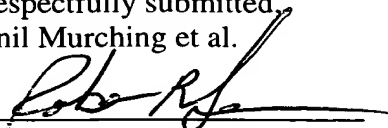
Applicants acknowledge the objection to claims 9-10 and the examiner's willingness to allow these claims if re-written in independent form so as to include all the limitations of their parent claims. However, claim 4, from which claims 9 and 10 depend, patentably distinguishes over the art of record. Applicant reserves the right to re-write these claims at a later date if necessary.

Conclusion

In view of the foregoing amendments to the claims and the accompany remarks, applicants deem the application in condition for allowance and solicit such action. If, however, the Examiner believes such action cannot be taken, the Examiner is invited to contact the applicant's attorney at (609) 734-6820, so that a mutually convenient date and time for a telephonic interview may be scheduled.

No fee is believed due. However, if a fee is due, please charge the additional fee to
Deposit Account 07-0832.

Respectfully submitted,
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